16. (New) An electron optical column as in claim 1, further comprising:

a first focus lens;

wherein said detector is situated within the bore of said first focus lens.

17. (New) An electron optical column as in claim 3, further comprising a second focus lens positioned axially adjacent to said first focus lens.

18. (New) An electron optical column as in claim 4, wherein said first and second focus lenses are electrostatic lenses.

19. (New) An electron optical column as in claim 1, further comprising a scanning deflector situated above said detector.

20. (New) An electron optical column as in claim 6, wherein said scanning deflector comprises a first deflector and a second deflector configured to provide telecentric scanning of said electron beam on said specimen substrate positioned below said voltage contrast plate.

21. (New) An electron optical column as in claim 7, wherein said scanning deflectors are electrostatic deflectors.

22. (New) An electron optical column as in claim 7, wherein said scanning deflectors are octupole deflectors.

23. (New) An electron optics assembly for a multi-column electron optical system comprising:

means for generating a multiplicity of electron beams;

a single voltage contrast plate with a multiplicity of plate apertures, such that there is a corresponding plate aperture for each column, the edges of said plate apertures are beveled at an angle so as to produce electric field free regions below said apertures on the surface of a wafer situated immediately below said voltage contrast plate; and

a multiplicity of annular secondary electron detectors centered on the optic axes of

corresponding columns and positioned above said voltage contrast plate.

24. (New) An electron optics assembly as in claim 10 further comprising a focus plate situated between said voltage contrast plate and said multiplicity of detectors, said focus plate having a multiplicity of focus apertures configured such that there is a corresponding focus aperture for each column.

25. (New) An electron optics assembly as in claim 10 further comprising:

a first focus plate, said focus plate having a multiplicity of first focus apertures configured such that there is a corresponding first focus aperture for each column;

wherein said detectors are situated within corresponding first focus apertures.

26. (New) An electron optics assembly as in claim 12 further comprising a second focus plate positioned adjacent to said first focus plate, said second focus plate having a multiplicity of second focus apertures configured such that there is a corresponding second focus aperture for each column.

27. (New) An electron optics assembly as in claim 10 further comprising a multiplicity of scanning deflectors situated above said detectors, such that there is a corresponding scanning deflector for each column.

28. (New) An electron optics assembly as in claim 14 wherein each said scanning deflector comprises a first deflector and a second deflector configured to provide telecentric scanning of said electron beams on a specimen substrate positioned below said voltage contrast plate.

29. (New) An electron optics assembly as in claim 15 wherein each said scanning deflector is an electrostatic deflector.

30. (New) An electron optics assembly as in claim 15 wherein each said scanning deflector is an octupole deflector.